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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,552	11/06/2003	Kyu-Dong Jung	277/013	8318

7590 06/14/2005

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EXAMINER

HARRISON, MONICA D

ART UNIT PAPER NUMBER

2813

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/701,552

Applicant(s)

JUNG ET AL.

Examiner

Monica D. Harrison

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brezoczky et al (6,241, 477 B1) in view of Allen (6,467,354 B1).

2. Regarding claim 1, Brezoczky et al discloses a method for vacuum-mounting at least one micro electro mechanical system (MEMS) on a substrate, comprising: attaching a getter (Figure 1, reference 160) to an interior surface of a cavity (Figure 1, reference 146) formed on a cover (Figure 1, reference 132); aligning the cover and a semiconductor substrate (Figure 1, references 106; 118; and 120) in a vacuum chamber (Figure 1, reference 100); injecting an inert gas into the vacuum chamber to achieve a predetermined degree of vacuum (Figure 1, reference 108). However, Brezoczky et al does not disclose bonding the cover and the semiconductor substrate.

Allen discloses bonding the cover and the semiconductor substrate (column 2, lines 6-7).

Since Brezoczky et al and Allen are both from the same field of endeavor, the purpose disclosed by Allen would have been recognized in the pertinent art of Brezoczky et al.

It is obvious, at the time the invention was made, for one with ordinary skill in the art, to modify Brezoczky et al with the teachings of Allen for the purpose of depositing glass with metal so that the glass may deform sufficiently enough to allow bonding of the glass to the silicon substrate.

3. Regarding claim 2, Brezoczky et al discloses wherein the getter is substantially made of titanium (column 5, lines 60-64).

4. Regarding claim 3, Allen discloses wherein the bonding is performed after a predetermined time has lapsed after the injection of the inert gas (column 2, lines 49-51).

5. Regarding claim 4, Brezoczky et al discloses wherein the inert gas is argon gas (column 5, lines 15-16).

6. Regarding claim 5, Brezoczky et al discloses discharging the inert gas to adjust the degree of vacuum in the vacuum chamber if an excessive amount of inert gas is injected into the vacuum chamber (Figure 1, reference 110).

7. Regarding claim 6, Brezoczky et al discloses wherein aligning the cover and the semiconductor substrate in a vacuum chamber comprises; adjusting a supporting means for supporting the cover and the semiconductor substrate in a vacuum chamber (Figure 1, reference 106) and adjusting a transporting means for transporting the cover and the semiconductor substrate in a vacuum chamber (Figure 1, references 118 and 120).

8. Regarding claim 7, Allen discloses wherein the bonding is anodic bonding (column 2, lines 49-51).

9. Regarding claim 8, Brezoczky et al discloses wherein bonding the cover and the semiconductor substrate comprises: heating the cover to a predetermined temperature (column 4, lines 6-9) and applying a high voltage to the cover (column 6, lines 33-60).

10. Regarding claim 9, Brezoczky et al discloses an apparatus for vacuum-mounting at least one micro electro mechanical system (MEMS), comprising: a gas injecting section (Figure 1, reference 108) for injecting an inert gas into a vacuum chamber (Figure 1, reference 100); a substrate aligning section for aligning a semiconductor substrate and a cover (Figure 1, references 106, 118, and 120), the cover (Figure 1, reference 132) having a cavity formed therein (Figure 1, reference 146) and a getter attached to an interior surface of the cavity (Figure 1, reference 160); and a controlling section for controlling the substrate aligning section to align the semiconductor and the cover, for controlling the gas injecting section to inject the inert gas into the vacuum chamber, and for controlling the bonding section to bond the semiconductor substrate and the cover together after the inert gas is injected (Figure 1, reference 166). However, Brezoczky et al does not disclose a bonding section for bonding the semiconductor substrate and the cover together.

Allen discloses a bonding section for bonding the semiconductor substrate and the cover together (column 2, lines 49-51).

Since Brezoczky et al and Allen are both from the same field of endeavor, the purpose disclosed by Allen would have been recognized in the pertinent art of Brezoczky et al.

It is obvious, at the time the invention was made, for one with ordinary skill in the art, to modify Brezoczky et al with the teachings of Allen for the purpose of depositing glass with metal

so that the glass may deform sufficiently enough to allow bonding of the glass to the silicon substrate.

11. Regarding claim 10, Brezoczky et al discloses wherein the substrate aligning section comprises: a supporting means for supporting both the semiconductor substrate and the cover (Figure 1, reference 106); and a transporting means for transporting both the semiconductor substrate and the cover (Figure 1, references 118 and 120).

12. Regarding claim 11, Brezoczky et al discloses wherein the bonding section comprises: a heat supplying part for applying a predetermined amount of heat to the cover (column 4, lines 6-9); and a high voltage supplying part for supplying a high voltage to the cover, wherein the controlling section controls the heat supplying pad and the high voltage supplying part according to a preset bonding condition (column 6, lines 33-60).

13. Regarding claim 12, Brezoczky et al discloses wherein the controlling section controls the bonding section to bond the semiconductor substrate and the cover to be bonded together after a predetermined time has lapsed after the inert gas is injected (Figure 1, reference 166).

14. Regarding claim 13, Brezoczky et al discloses wherein the getter is substantially made of titanium (column 5, lines 60-64). 1

15. Regarding claim 14, Brezoczky et al discloses wherein the inert gas is argon gas (column 5, lines 15-16).

16. Regarding claim 15, Brezoczky et al discloses a gas discharging section for discharging the inert gas from the vacuum chamber to adjust a degree of vacuum in the vacuum chamber (Figure 1, reference 110).

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17. Regarding claim 16, Allen discloses wherein the cover is a glass plate (Figure 1, reference 20).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica D. Harrison whose telephone number is 571-272-1959. The examiner can normally be reached on M-F 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monica D. Harrison
AU 2813

mdh
June 13, 2005



**CRAIG A. THOMPSON
PRIMARY EXAMINER**